

# ECCOSORB® MFS

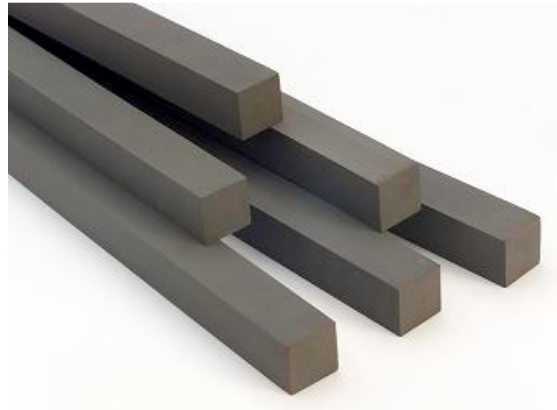
NON-RIGID, MAGNETICALLY LOADED, SILICONE STOCK

## Description :

Eccosorb MFS is a high-loss stock based on silicone rubber with excellent thermal conductivity.

This product was developed to overcome the physical limitations of rigid high-loss absorbers.

Being flexible, Eccosorb MFS can be fitted to compound curves. Low out-gassing properties for space applications.



## Application :

Eccosorb MFS is engineered for terminations, loads, attenuators in microwave circuits, waveguides and transmission systems.

It can be bonded to low-expansion-coefficient ceramics, such as sintered ferrites.

## Physical Properties :

	MFS
Colour	Grey
Maximum Service Temperature (°C)	160
Density (g/cm <sup>3</sup> )	4.15 – 4.3
Hardness (Shore A)	>70
Thermal Expansion per °C	63 x 10 <sup>-6</sup>
Water Absorption, % 24 hours	<0.1
Volume Resistivity (Ohm.cm)	>10 <sup>10</sup>



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## Electromagnetic properties :

### Typical Electrical Properties

	GHz	10 <sup>-7</sup>	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>	10 <sup>-2</sup>	10 <sup>-1</sup>	1.0	3.0	8.6	10.0	18.0
<b>MFS-117</b>	K'	195	158	120	85	62	48	38	28	22.9	21.4	21	20.6
	tan δ <sub>d</sub>	0.18	0.21	0.23	0.24	0.22	0.18	0.12	0.09	0.06	0.02	0.02	0.02
	K''	35	33	28	20	14	8.6	4.6	2.5	1.4	0.42	0.42	0.41
	M'	5	5	5	5	5	5	4.8	4.1	3.4	1.2	1.1	1
	tan δ <sub>m</sub>	0	0	0	0	0	0	0.1	0.2	0.39	1.36	1.5	2
	M''	0	0	0	0	0	0	0.48	0.82	1.33	1.63	1.7	2
	dB/cm	0	0	0	0	0	0.03	0.27	2.8	11	46	56	119
	dB/in	0	0	0	0	0	0.08	0.69	7.1	28	117	142	302
	Z /Z <sub>0</sub>	0.16	0.18	0.2	0.24	0.28	0.32	0.36	0.39	0.4	0.3	0.31	0.33
<b>MFS-124</b>	K'	260	205	145	95	70	52	40	32	25.8	23.8	23.6	23
	tan δ <sub>d</sub>	0.4	0.39	0.36	0.31	0.26	0.2	0.14	0.08	0.07	0.05	0.03	0.04
	K''	104	80	52	29	18	1	5.6	2.6	1.8	1.19	0.71	0.92
	M'	7	6.9	6.8	6.7	6.6	6.3	6	5	3.8	2.5	1.5	1
	tan δ <sub>m</sub>	0	0	0	0	0	0	0.2	0.45	0.69	1.1	1.4	2.5
	M''	0	0	0	0	0	0	1.2	2.3	2.62	2.75	2.1	2.5
	dB/cm	0	0	0	0	0	0.03	0.48	6.5	20	63	67	149
	dB/in	0	0	0	0	0	0.08	1.2	16.51	50	160	170	378
	Z /Z <sub>0</sub>	0.16	0.18	0.21	0.26	0.3	0.34	0.39	0.42	0.42	0.39	0.33	0.34

\*Note: Attenuation is a theoretical property calculated from the Complex Permittivity and Complex Permeability of a lossy material and is strictly a means of comparing one absorbing material to another. The attenuation properties are not an indication of how the material will perform inside a microwave device. The frequencies of use recommended for ECCOSORB® MFS-117 & ECCOSORB® MFS-124 in the Typical Properties Table of this

### Typical Electrical Properties Legend

K'	Real part of the permittivity (dielectric constant)
tan δ <sub>d</sub>	Dielectric loss tangent
K''	Imaginary part of the permittivity (loss)
M'	Real part of the magnetic permeability
tan δ <sub>m</sub>	Magnetic loss tangent
M''	Imaginary part of the magnetic permeability (loss)
dB/cm	Attenuation per unit distance
dB/in	Attenuation per unit distance
Z /Z <sub>0</sub>	Normalized impedance magnitude ratio



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## Availability :

Available in two types, Eccosorb MFS-117 and Eccosorb MFS-124.

Sheets: 12" x 12" (30.5cm x 30.5cm) in thicknesses of 1/8, 1/4, 1/2 & 1.0" (0.32, 0.64, 1.27, 2.54 cm)

Bars: 12" long (30.5cm) long in squares of 1/4, 1/2, 1.0" (0.64, 1.27, 2.54 cm).

Eccosorb MFS is available in other thicknesses, sizes, and customer specified shapes upon request.

## Instructions for use

Eccosorb MFS is designed to function directly in front of a metallic surface.

If this is not the case, a metallic foil should first be bonded to the object.

As it is a homogeneous material, there is no distinction between its front and back face.

To obtain a strong bond of the absorber to the object, the metallic surface should be first thoroughly cleaned with a degreasing solvent.

The material can be bonded by use of an RTV silicone based adhesive in conjunction with a suitable primer.

Eccosorb MFS can be readily cut with a sharp knife and template.

It is a flexible material and will conform to mild curvatures.



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**WARRANTY:** Values shown are based on testing of laboratory test specimens and represent data that falls within the normal range of properties of the material. These values are not intended for use in establishing maximum, minimum or ranges of values for specification purposes. Any determination of the suitability of the material or any use contemplated by the user and the manner of such use is the sole responsibility of the user who must assure that the material as subsequently processed meets the needs of this particular product or use.

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